PROC. BIOL. SOC. WASH.
94(2), 1981, pp. 363–373

SYSTEMATIC NOTES ON CERTAIN OSCINES FROM PANAMA AND ADJACENT AREAS (AVES: PASSERIFORMES)

Storrs L. Olson

Abstract.—*Vireo gilvus disjunctus* Zimmer, 1941, is synonymized with *Vireo gilvus dissors* Zimmer, 1941, the range of which is extended to include both slopes of the northern end of the Western Andes of Colombia and Darién, Panama. The range of *Chlorospingus ophthalmicus novicius* Bangs, 1902, is restricted to the Boquete region and the east slope of Volcán de Chiriquí, Panama, the remainder of western Panama and Costa Rica being occupied by *C. o. regionalis* Bangs, 1906. *Chlorospingus punctulatus* Sclater and Salvin, 1869, should be regarded as a subspecies of *C. ophthalmicus* (Du Bus, 1847). *Chrysothlypis chrysomelas titanota* n. subsp. is named from Costa Rica, the nominate form being restricted to western Panama. *Icterus chrysater hondae* Chapman, 1914, is considered to be known from the holotype and paratype only, and all other specimens from Colombia and Panama are referred to *I. c. giraudii* Cassin, 1848. *Icterus mesomelas salvini* Cassin, 1867, extends only to the Almirante region of the Caribbean slope of western Panama, all other specimens from Panama being referable to *I. m. carrikeri* Todd, 1917. *Zonotrichia capensis orestera* Wetmore, 1951, is synonymized with *Z. c. costaricensis* Allen, 1891.

Vireonidae

Vireo gilvus

The collection of a specimen of *Vireo gilvus* from Darién, Panama, that is quite distinct from the population of western Panama and Costa Rica, *V. g. chiriquensis* (Bangs, 1903), necessitates a review of the subspecies known from Colombia. The last revision of these forms is that of Zimmer (1941). Material in the USNM collected by Carriker subsequent to Zimmer's revision requires changes to be made in the current nomenclature and published distributions of certain subspecies.

Two subspecies are recognized in eastern Colombia—*V. g. mirandae* Hartert, 1917, of the Santa Marta region and northern Venezuela, and *V. g. leucophrys* (Lafresnaye, 1844) in the Eastern Andes of Colombia, reportedly extending as far south as the eastern part of central Peru (Blake, 1968). As noted by Hellmayr (1935) and Meyer de Schauensee (1951), *mirandae* is poorly marked, but in series the 23 USNM specimens from Santa Marta,

Sierra Perijá, and Sierra Negra, Colombia are seen to have paler underparts than *leucophrys,* although not all individuals would be separable.

The populations of the middle portions of the Central and Western Andes were recognized by Zimmer (1941) as a new race, *V. g. dissors* (type locality, Cerro Munchique, Cauca). This can be distinguished from *leucophrys* by the grayer, as opposed to warm brown, crown and the greener, less brown, dorsum. Although Meyer de Schauensee (1951) referred specimens from Huila to *leucophrys,* Carriker specimens from Huila (3 from Belén, 45 km SW of La Plata; 2 from La Candela, 10 miles SW of San Augustín) show a decided approach to *dissors* and can probably be regarded as intergrades. An older specimen from La Candela, presumably through foxing, appears more typical of *leucophrys* than those taken 40 years later.

On the basis of six specimens from the eastern slope of the northern end of the Central Andes, Zimmer (1941) described an additional race, *V. g. disjunctus* (type locality, Santa Elena, Antioquia). USNM specimens from the Central Andes in Antioquia include 4 from Hacienda Zulaiba, 17 miles NE of Santa Rosa de Osos, and 2 from La Bodega, S side of Río Negrito, on the road from Sonson to Nariño. Additional specimens from Antioquia definitely extend the range of the species to both slopes of the northern end of the Western Andes, whereas previously there had evidently been some doubt that the species occurred there (Blake, 1968). USNM specimens from the Western Andes include 7 from Hacienda Potreros, 15 miles SW of Frontino; 3 from Hacienda La Ilusión, Río Urrao, base of Páramo de Frontino, and 1 from Urrao.

Although Zimmer (1941:18) took some pains to distinguish *disjunctus* from the races in Ecuador and Peru, the only supposed difference from *dissors,* which is the nearest race geographically, was given as "darker upper parts." The characters he cites as differentiating *disjunctus* from *leucophrys* are exactly the same as those given for separating *dissors* from *leucophrys.* In the series I examined, which included topotypes of both *dissors* and *disjunctus,* there was only a tendency for darker coloration in the dorsum of more northern birds, but individual and seasonal variation made it impossible to separate specimens into two groups. Therefore, one of Zimmer's names, which were proposed simultaneously, should be suppressed. As first revisor, I select the name *dissors* to represent the subspecies of *Vireo gilvus* inhabiting the entire extent of the Western and Central Andes of Colombia, with *disjunctus* falling into synonymy.

A considerable extension of range for the species is provided by a single female taken 4 June 1963 by Pedro Galindo, 4 miles (6.4 km) W of the summit of Cerro Malí, Darién, Panama, at an elevation of 4800 feet (1463 m). This specimen (USNM 486488) has the pale underparts typical of Colombian birds and cannot, therefore, be referred to *chiriquensis* of western Panama. The coloration of the upperparts is unlike that of *leucophrys* and

is most like that of *dissors,* to which I tentatively refer the specimen, although its preservation and state of wear do not permit a positive determination.

Both Hellmayr (1935) and Zimmer (1941) discuss a specimen of *V. gilvus* from Ricaurte, Nariño, southwestern Colombia, that Hellmayr referred to *v. g. josephae* Sclater, 1859, of Ecuador. In the USNM collections is an additional specimen, also from Ricaurte, taken by Carriker in 1950. I could detect no difference between this specimen and individuals of *dissors,* whereas it differs from *josephae* in the lighter crown and greener, less brownish, dorsum. For the present, the distribution of *V. g. josephae* probably should not be considered to include Colombia.

Thraupidae

Chlorospingus ophthalmicus

There are two races of this highly polymorphic species recognized in Costa Rica and Panama—*C. o. novicius* Bangs, 1902, and *C. o. regionalis* Bangs, 1906. Examination of extensive material from Panama shows that these two taxa are indeed valid, but their distribution and characters are not properly delimited at present. Zimmer (1947:3), for example, considered that "the separation of *novicius* and *regionalis* is not sharp and it is difficult to say where the line should be drawn." This idea results in part from ambiguous labeling of specimens but also from the fact that *novicius,* which is actually quite distinctive, has a peculiarly restricted range.

Bangs (1902) described *Chlorospingus novicius* from a series of specimens collected by W. W. Brown in Chiriquí, western Panama. Most of these were labeled as being from Boquete, but a few were labelled "Mt. Chiriqui" or "Caribbean Slope," meaning the Caribbean slope of Mt. Chiriquí (=Volcán de Chiriquí or Volcán Baru). The holotype is from "Mt. Chiriqui" at 7500 feet (2286 m). It is important to note that Brown worked out of Boquete and would therefore presumably have taken this, and other specimens so labeled, on the eastern slope of Volcán de Chiriquí. Bangs (1902) referred to Boquete as being "south" of Volcán de Chiriquí and considered most of Brown's collecting to have been done on the south slope, apparently to contrast it with the "northern" or Caribbean slope, whereas in fact, Boquete is more nearly east of Volcán de Chiriquí. Brown would have collected on the eastern as opposed to the western face of the volcano, which latter has been accessible only in more recent times. Because the birds from the western slope are referable to *regionalis,* the type locality of *novicius* should be restricted to the eastern slope of Volcán de Chiriquí.

The species *Chlorospingus ophthalmicus* was poorly known when Bangs (1902) described *novicius,* and he made his comparisons chiefly with the subspecies from Bolivia now known as *bolivianus* Hellmayr, 1921, noting

particularly that the bill in *novicius* was larger. Bangs (1906) later described the birds of Costa Rica as a new form, *regionalis* (type locality, Cariblanco de Sarapiquí), distinguished by differences in color. Hellmayr (1936:402), in contrasting *novicius* with *regionalis,* regarded it as having a "much larger, thicker as well as longer bill." This is erroneous and was obviously adapted from Bangs' (1902) original comparison of *novicius* with the small-billed race *bolivianus*. Hellmayr further considered that two specimens from Urujás de Térraba, Costa Rica, were "identical with a topotypical series" of *novicius,* so that thenceforth (e.g. Storer, 1970), the range of *novicius* has been given as including western Panama and southwestern Costa Rica, with *regionalis* occupying the remainder of Costa Rica and Nicaragua.

In the process of arranging the USNM series of *C. ophthalmicus* from Panama by locality to check geographic variation, I found that birds from Boquete were markedly distinct from those taken elsewhere in Panama—so much so that I was easily able to pick out the remainder of the Boquete specimens before reading the labels. I could not distinguish birds from west of Volcán de Chiriquí from *regionalis* of Costa Rica. Much has been obfuscated by the apparent tendency of collectors to label specimens taken anywhere within sight of Volcán de Chiriquí as "El Volcán." Wetmore, for example, applied this term to such diverse localities as Cerro Picacho (7 km N of the peak), Silla de Cerro Pando (17 km WNW of the peak), and Lagunas (16 km WSW of the peak). Fortunately, he also supplied the more detailed locality information as well, which other collectors usually have not done. Many specimen labels of the past few decades apparently refer to the town of El Volcán (El Hato del Volcán or El Hato), west of the volcano, rather than to the peak itself.

From the available evidence, it appears that *C. o. novicius* has a much more restricted distribution than hitherto suspected, being known with certainty only from the Boquete area and extending from there to the Caribbean slope of Bocas del Toro. In addition to the USNM series of specimens from Boquete, I have examined the holotype of *C. o. novicius* and what remains at the MCZ of the original type series (Mt. Chiriquí, 3; Caribbean slope, 2; Boquete, 11), as well as the specimens recorded by Blake (1958) from the Boquete area, including the Caribbean slope of Bocas del Toro. All of these specimens are referable to *novicius*. Birds from the western slope of Volcán de Chiriquí through Costa Rica to Nicaragua are referable to *regionalis*.

C. o. novicius differs from *C. o. regionalis* as follows: crown and sides of head darker, decidedly brownish, not gray; dorsum more olivaceous, less yellow-green; pectoral band more intensely orangish, less yellow; light portions of throat more restricted, more heavily speckled, usually suffused with buff or even with the orangish of the breast, not whitish as in *regionalis*.

In these characters, as Zimmer (1947) noted, *novicius* shows a decided approach to the birds of Veraguas and Coclé, now known as *Chlorospingus*

punctulatus Sclater and Salvin, 1869 (see Storer, 1970), in which the crown and sides of head are very dark brown, the throat is even more intensely speckled, and the pectoral band is deeper orange. Both Zimmer (1947) and Eisenmann (1955) rightly considered *punctulatus* to be but a subspecies of *C. ophthalmicus,* but Storer (1970:259, footnote) quoted Wetmore (in litt.) as believing it "closer to [*Chlorospingus*] *pileatus* but would maintain it as a full species until more is known about it in life." *C. punctulatus* has the white spot behind the eye characteristic of most subspecies of *C. ophthalmicus* and shows no approach whatever to *C. pileatus* Salvin, 1864, which has a broad white stripe extending from above the eye to the posterior margin of the crown. In its coloration, *punctulatus* differs only slightly from other dark-capped subspecies of *C. ophthalmicus,* such as *venezuelanus* Berlepsch, 1893, and clearly should be regarded as a subspecies of *C. ophthalmicus*. The fact that no specimens of *C. ophthalmicus* are known from the area between Boquete and the range of *punctulatus* in Veraguas, has no doubt contributed to the misunderstanding of the relationships of *punctulatus*.

There is some evidence of intergradation between *novicius* and *regionalis*. Three birds collected at Cerro Punta in 1932 show some buffiness in the throat, a somewhat more orangish pectoral band, and some brown in the crown, possibly due to intergradation with *novicius*. On the other hand, two birds from the same locality taken in 1955, and another taken in 1965, are clearly referable to *regionalis*.

USNM Panamanian specimens examined.—C. o. novicius: CHIRIQUI: "Mt. Chiriqui" (topotypical paratype) 1; Boquete (paratypes) 4; Boquete, Palo Alto, 1; Boquete, Río Caldera, 5; Boquete, Quiel, 18.

C. o. regionalis: CHIRIQUI: "Volcán," 2; El Volcán, Tisingal, 4; El Volcán, Silla de Cerro Pando, 5; El Volcán, Quebrada Zumbona, 2; El Volcán, Laguna Grande, 4; El Volcán, Lagunas, 2; El Volcán, Cerro Picacho, 1.

Chrysothlypis chrysomelas

Currently there are two subspecies recognized for this distinctive bird. The nominate form *C. c. chrysomelas* (Sclater and Salvin, 1869; type locality, Cordillera del Chucú, Veraguas, Panama) is stated to range through Costa Rica and western Panama, and *C. c. ocularis* Nelson (1912; type locality, Cana, Darién, Panama) has heretofore been known only from Darién, eastern Panama. Nelson (1912) distinguished *ocularis* from *chrysomelas* partly by the black loral spot of adult males, but mainly by what he supposed to be differences in the females. He was misled by comparing females of *ocularis,* which are entirely yellow underneath, with those from Costa Rica, which he regarded as "typical" and which are whitish below. Nelson had no specimens of true *chrysomelas* from western Panama, how-

ever; these birds are entirely yellow below, as in *ocularis*. This is clearly shown in Sclater and Salvin's (1869) plate accompanying the original description of *chrysomelas*. The Costa Rican birds thus represent an undescribed subspecies, as was mentioned in a footnote by Griscom (1935:377).

Chrysothlypis chrysomelas titanota, new subspecies

Holotype.—Female, USNM 209197, Bonilla, northern Cartago, Costa Rica. Collected 10 April 1908 by Francisco Basulto, original number 743.

Characters.—Adult males like *chrysomelas*; females with throat and belly suffused with white, leaving only a band across the breast yellowish, whereas females of *chrysomelas* are entirely bright yellow below; flanks grayish, not yellow-green as in *chrysomelas*.

Range.—Caribbean slope of Costa Rica. The great majority of specimens come from a limited area in central Costa Rica, but Slud (1964:366) records the species from "just south of Lake Arenal to the northern and eastern sides of the Cordillera Central and the approaches to the Talamanca Cordillera . . . ."

Etymology.—Greek, *titanotos,* whitened, from *titanos,* chalk or gypsum.

Specimens examined.—COSTA RICA. HEREDIA: Cariblanco de Sarapiquí (adult ♂: 1, MCZ; ♀: 1, MCZ; 1, AMNH). SAN JOSE: Carillo (adult ♂: 1, FM; 1, ANSP; 11, MCZ; immature ♂: 1, AMNH; 1, MCZ; 1, FM; ♀: 2, MCZ; 4, AMNH); La Hondura (adult ♂: 1, USNM). CARTAGO: Bonilla (adult ♂: 7, USNM; ♀: 4, USNM; 1, AMNH).

Remarks.—The three immature males listed above are more yellow below than any of the females. K. C. Parkes (in litt.) reports that of about 30 specimens in the Carnegie Museum of Natural History (all from Carillo), there are four non-juveniles sexed as females, two of which are whitish, as typical for *titanota,* one of which is all yellow below, and one of which is intermediate. One bird sexed as male that apparently is also a juvenile, is whitish below, as is an unsexed juvenile. Thus there seems to be some infrequent variation in the color of the underparts, but whether this can be correlated with age or sex cannot be determined with the material at hand. Regardless, virtually all Costa Rican females are instantly separable from all Panamanian females.

Chrysothlypis chrysomelas chrysomelas (Sclater and Salvin)

Tachyphonus chrysomelas Sclater and Salvin 1869, Proc. Zool. Soc. London 1869:440. Cordillera del Chucú, Veraguas, Panama.

Characters.—Females like *ocularis,* separable from *titanota* by the entirely yellow underparts. Males like *titanota,* separable from *ocularis* by the lack of a black loral spot.

Range.—Known with certainty only from Veraguas, Coclé, and western Panamá Province, Panama.

Specimens examined.—PANAMA. COCLE: Head of Río Guabal (adult ♂: 2, USNM; immature ♂: 2, USNM; ♀, 2 USNM). PANAMA PROVINCE: Cerro Campana (adult ♂; 1, USNM; 1, AMNH; ♀: 1, USNM).

Remarks.—The identity of 8 specimens (MCZ) from the Caribbean slope of Bocas del Toro, on the Boquete trail above Almirante (Kennard and Peters, 1928; Peters, 1931), remains in doubt. Five are adult males, two are immature males, and one is unsexed, but not an adult male. The last three birds are entirely yellow below, as in *chrysomelas,* but in the absence of any certain female specimens, the possibility remains that these birds may be referable to *titanota.*

Chrysothlypis chrysomelas ocularis Nelson

Chrysothlypis chrysomelas ocularis Nelson 1912, Smithsonian Misc. Coll. 60:19. Cana, eastern Panama.

Characters.—Exactly like *chrysomelas* except adult males with part of loral area black instead of yellow.

Range.—Eastern Panama in Darién and eastern Panamá Province.

Specimens examined.—PANAMA. PANAMA PROVINCE: Cerro Azul (adult ♂: 1, AMNH). DARIEN: Cana (adult ♂: 2, USNM; immature ♂: 1, USNM; ♀: 2, USNM); Tacarcuna Village (adult ♂: 1, USNM; ♀: 2, USNM); Cerro Tacaracuna (♂: 2, AMNH; ♀: 4, AMNH); Cerro Sapo (♂: 5, ANSP; ♀: 5, ANSP).

Remarks.—The supposedly greater width of the black orbital ring described by Nelson (1912) is too much affected by the preparation of the specimen to be of use. The specimen from Cerro Azul is the only one known outside of Darién. It has the black loral spot somewhat reduced, but no more so than certain individuals from Cerro Sapo.

Icteridae

Icterus chrysater

In the earlier literature, the southern populations of *I. chrysater* from Panama, Colombia, and Venezuela, were considered to represent a single subspecies, *I. c. giraudii* Cassin, 1898 (type locality "Bogota"). On the basis of two (not three, *contra* Meyer de Schauensee, 1951) male specimens from Honda, Tolima, Colombia, Chapman (1914) described a new species, *Icterus hondae,* differentiated from *I. chrysater* by much deeper orange coloration and supposedly smaller size. Meyer de Schauensee (1951), while allowing that these specimens were more orange than in *giraudii,* considered *hondae* to be a subspecies of *chrysater.* He assigned all birds from Panama,

the lowlands of western Colombia, and the Magdalena Valley to *hondae* on the basis of supposedly smaller size, reserving the name *giraudii* for the birds of the upper tropical and lower temperate zones of the remainder of Colombia and part of Venezuela. Blake (1968) followed this treatment.

According to Meyer de Schauensee (1951), the wing is 90–92 mm in the types of *hondae,* 89–94 mm in birds from the Pacific Coast of Colombia, and 86–94 mm in specimens from Panama. He considered the wing length of *giraudii* to range from 95.5 to 111 mm. Both the holotype and paratype of *hondae,* however, retain the primaries of the previous subadult plumage, which results in a shorter wing measurement. The wings in 32 males from Panama in the USNM range from 89 to 103 mm, and average 96 mm. Nine males from Magdalena and Norte de Santander, within the restricted range of *giraudii,* had wing lengths from 96.3 to 101.6 mm, averaging 98.4 mm. Overlap is thus far too great to permit separation of these birds, and there are no size differences within the remainder of the USNM series from Colombia and Panama that will permit the recognition of more than one subspecies in this area. Alexander Wetmore's unpublished notes and measurements of this series indicate that he considered all these specimens to be referable to *I. c. giraudii,* and I concur.

Although there is considerable variation in the intensity of coloration of specimens of *giraudii,* none is as deep orange as the type and paratype of *I. hondae,* which I examined at AMNH. Furthermore, the bills in these specimens are proportionately longer, more slender, and pointed than in *giraudii*; the mandibles in both are light horn color at the base, not bluish or blackish as in *giraudii*; and both have less black on the forehead and over the eye than *giraudii*. These characters were not noted in the original description or subsequently. For the present I regard *I. hondae* as a problematical subspecies of *I. chrysater* that is known so far only from the two original specimens. It is possibly confined to the upper Magdalena River Valley.

Icterus mesomelas

Four subspecies are recognized in *I. mesomelas,* of which the northernmost (*mesomelas* [Wagler, 1829]) and southernmost (*taczanowskii* Ridgway, 1901) are easily separated from the other two by the yellowish-white margins of their inner secondaries. Birds from eastern Panama and the Caribbean slope of western Panama through Nicaragua are presently (Blake, 1968) referred to *I. m. salvini* Cassin, 1867 (type locality, Costa Rica), whereas those from Colombia and western Venezuela are referred to *I. m. carrikeri* Todd, 1917 (type locality, Fundación, Santa Marta, Magdalena, Colombia). Todd (1917) merely compared *carrikeri* with *taczanowskii* of Ecuador and Peru and did not say how it differed from *salvini.* Hellmayr

(1937) diagnosed *carrikeri* as differing from *salvini* in having the black gular area more restricted, the bill smaller, and the general coloration slightly more orange.

In analyzing the specimens in the USNM, it quickly became evident that there were inaccuracies in the current concept of variation in this species, as the majority of Panamanian birds proved inseparable from those of Colombia. This at first suggested that the race *carrikeri* was invalid. Although poorly marked, *carrikeri* can be salvaged by redefining its range to include all of Panama east of the Canal Zone, extending west to Cerro Campana, western Panamá Province on the Pacific slope, and at least to El Uracillo, Coclé, on the Caribbean slope. The only specimens from Panama that are referable to *salvini* are from the Almirante area of Bocas del Toro (Almirante 2, USNM; 5, MCZ; Western River 2, MCZ; Fruitdale 1, MCZ; Changuinola River 2, MCZ). There is thus a considerable hiatus between *salvini* and *carrikeri* along the Caribbean coast of Panama. This is in large measure an artifact of collecting, but the pattern of distribution of these two subspecies, as redrawn here, is one commonly observed in other polytypic species of Panamanian birds.

Icterus m. salvini is separable from *I. m. carrikeri* by its larger bill (usually over 16.5 mm from anterior margin of nostril to tip) and more extensive black gular patch, although the latter is often considerably affected by the "make" of the skin. There is overlap in color characters; *salvini* seems never to be orangish, as are many individuals of *carrikeri,* but the more yellow examples of *carrikeri* could not be distinguished from *salvini.*

Fringillidae

Zonotrichia capensis

Although highly polytypic, *Zonotrichia capensis* shows an unusual lack of differentiation from Costa Rica through Panama, the Andes of Colombia, Ecuador, and western Venezuela. All specimens from these areas have in the past been assigned to the subspecies *Z. c. costaricensis* Allen, 1891. On the basis of nine specimens taken from Cerro Campana, western Panamá Province, Wetmore (1951) named a new subspecies, *Z. c. orestera,* distinguished from *costaricensis* by its supposedly darker coloration. In comparing these birds with the extensive series in the USNM from Costa Rica, Panama, and Colombia, I am unable to appreciate the distinction, however. Because all specimens in the type series of *orestera* were collected within a few days of each other in March, they are in a similar stage of molt and wear, causing them to exhibit a certain uniformity in appearance that one would not normally encounter in a more randomly selected series of specimens. This may have influenced Wetmore's conclusion. Nevertheless, there are numerous examples of *costaricensis* in the USNM collections that

cannot be separated from those in the type series of *orestera*. I regard *Z. c. orestera* Wetmore, 1951 as a synonym of *Z. c. costaricensis* Allen, 1891. Considering the vast range through which *Z. c. costaricensis* shows no appreciable variation, it would indeed have been remarkable if the birds from Cerro Campana had differentiated.

Acknowledgments

I am indebted to the curators of the following institutions for lending specimens or permitting their examination: American Museum of Natural History, New York (AMNH); Academy of Natural Sciences of Philadelphia (ANSP); Carnegie Museum of Natural History, Pittsburgh (CM); Field Museum of Natural History, Chicago (FM); Museum of Comparative Zoology, Cambridge, Massachussets (MCZ); Museum of Vertebrate Zoology, Berkeley; National Museum of Natural History, Smithsonian Institution (USNM). I am grateful to Eugene Eisenmann and Kenneth C. Parkes for providing information and for their comments on the manuscript. This is contribution number 8 of the Wetmore Papers, a project supported in part by trust funds from the Smithsonian Institution for completing unfinished work and study of undescribed material left by the late Alexander Wetmore.

Literature Cited

Bangs, O. 1902. On a second collection of birds made in Chiriqui, by W. W. Brown, Jr.—Proceedings of the New England Zoological Club 3:15–70.

———. 1906. Notes on birds from Costa Rica and Chiriqui, with descriptions of new forms and new records for Costa Rica.—Proceedings of the Biological Society of Washington 19:101–112.

Blake, E. R. 1958. Birds of Volcán de Chiriquí, Panama.—Fieldiana: Zoology 36(5):499–577.

———. 1968. Family Vireonidae. Family Icteridae. *In* R. A. Paynter, Jr., ed. Check-list of Birds of the World. Volume 14.—Harvard University Press, Cambridge, Massachusetts.

Chapman, F. M. 1914. Diagnoses of apparently new Colombian birds, II.—Bulletin of the American Museum of Natural History 33(12):167–192.

Eisenmann, E. 1955. The species of Middle American birds.—Transactions of the Linnaean Society of New York 7:vi + 128 pages.

Griscom, L. 1935. The ornithology of the Republic of Panama.—Bulletin of the Museum of Comparative Zoology 78(3):261–382.

Hellmayr, C. E. 1935. Catalogue of birds of the Americas. Part 8.—Field Museum of Natural History Zoological Series 13(8):1–541.

———. 1936. Catalogue of birds of the Americas. Part 9.—Field Museum of Natural History Zoological Series 13(9):1–458.

———. 1937. Catalogue of birds of the Americas. Part 10.—Field Museum of Natural History Zoological Series 13(10):1–228.

Kennard, F. H., and J. L. Peters. 1928. A collection of birds from the Almirante Bay region of Panama.—Proceedings of the Boston Society of Natural History 38(10):443–465.

Meyer de Schauensee, R. 1951. The birds of the Republic of Colombia. Part 4.—Caldasia 5:873–1112.

Nelson, E. W. 1912. Descriptions of new genera, species and subspecies of birds from Panama, Colombia, and Ecuador.—Smithsonian Miscellaneous Collections 60(3):1–25.

Peters, J. L. 1931. Additional notes on the birds of the Almirante Bay region of Panama.—Bulletin of the Museum of Comparative Zoology 71(5):293–345.

Sclater, P. L., and O. Salvin. 1869. Descriptions of three new species of tanagers from Veragua.—Proceedings of the Zoological Society of London 1869:439–440.

Slud, P. 1964. The birds of Costa Rica, distribution and ecology.—Bulletin of the American Museum of Natural History 128:1–430.

Storer, R. W. 1970. Family Thraupidae. *In* R. A. Paynter, Jr., ed. Check-list of Birds of the World. Volume 13.—Harvard University Press, Cambridge, Massachusetts.

Todd, W. E. C. 1917. Preliminary diagnoses of apparently new birds from Colombia and Bolivia.—Proceedings of the Biological Society of Washington 30:3–6.

Wetmore, A. 1951. Additional forms of birds from Colombia and Panama.—Smithsonian Miscellaneous Collections 117(2):1–11.

Zimmer, J. T. 1941. Studies of Peruvian birds. 39.—American Museum Novitates 1127:1–20.

———. 1947. Studies of Peruvian birds. 52.—American Museum Novitates 1367:1–26.

National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.